

*AB*  
*BB*  
a second positioning arrangement provided on one of the rotor, the stator and a fastening element;

wherein the first positioning arrangement and the second positioning arrangement are configured to interact in a positive-locking manner and to provide definite positioning of the bristle housing, and wherein the first positioning arrangement includes at least one integral projection that projects beyond at least one side surface, wherein the projection is one of lenticular and conical, the second positioning arrangement including a recess formed in one of the stator, the rotor and the fastening element, the at least one integral projection being engageable in the recess.

## REMARKS

### I. Introduction

Claims 1 to 14 are pending in the present application. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

Applicants note with appreciation the acknowledgment of the claim for foreign priority and the indication that all copies of the certified copies of the priority documents have been received.

### II. Rejection of Claims 1 to 5, 7, 8 and 14 Under 35 U.S.C. § 102(b)

Claims 1 to 5, 7, 8 and 14 stand rejected under 35 U.S.C. 102(b) as anticipated by U.S. Patent No. 5,066,025 ("Hanrahan"). Applicants respectfully submit that Hanrahan does not anticipate the present claims for the following reasons.

Claim 1 relates to a brush seal for sealing a rotor with respect to a stator. Claim 1 recites that the brush seal comprises a bristle housing configured to be arranged on a first one of the rotor and the stator, the bristle housing including a cover plate, a supporting plate, a circumferential surface and two side surfaces. Claim 1 also recites that the brush seal includes bristles fastened in the bristle housing, the bristles including free ends oriented toward a second one of the rotor and the stator. Claim 1 further recites that the brush seal includes a first positioning

arrangement provided on at least one of the circumferential section and at least one side surface, and a second positioning arrangement provided on one of the rotor, the stator and a fastening element. Claim 1 recites that the first positioning arrangement and the second positioning arrangement are configured to interact in a positive-locking manner and to provide definite positioning of the bristle housing.

Hanrahan purports to relate to a support structure that includes a recess which accepts a short plate of a brush seal but will not accept a long plate of the brush seal. Abstract. Furthermore, Hanrahan purports to describe a retaining ring groove that accepts the retaining ring only if the seal is installed in the proper direction. Abstract. Hanrahan also purports that, in accordance with this arrangement, reverse installation of the brush seal is precluded without special machining of the brush seal. Abstract.

To anticipate a claim, each and every element as set forth in the claim must be found in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of Calif., 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Furthermore, “[t]he identical invention must be shown in as complete detail as is contained in the . . . claim.” Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). That is, the prior art must describe the elements arranged as required by the claims. In re Bond, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). Still further, not only must each of the claim limitations be identically disclosed, an anticipatory reference must also enable a person having ordinary skill in the art to practice the claimed invention, namely the inventions of the rejected claims, as discussed above. See, Akzo, N.V. v. U.S.I.T.C., 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986).

Applicants respectfully submit that Hanrahan does not anticipate the present claims because Hanrahan fails to disclose, or even suggest, each and every element recited in amended claim 1. For instance, it is respectfully submitted that Hanrahan fails to disclose, or even suggest, a bristle housing that includes a circumferential surface and two side surfaces, wherein the brush seal includes a first positioning arrangement provided on at least one of the circumferential surface and at least one side surface, as recited in amended claim 1. In contrast, Hanrahan describes a short side 20 of a brush seal 10 having a radial dimension that is less than the length of a recessed surface 38 of a recess 36 having an axially facing

shoulder 32. Col. 2, lines 48-52. The short side 20 of the brush seal 10 is completely smooth, and, thus, the brush seal 10 of Hanrahan does not include a positioning arrangement provided on at least one side surface, as recited in amended claim 1. Furthermore, Hanrahan describes an independent retaining ring 26, for example a snap ring or a double spiral wire, that is inserted into the retaining ring groove 28 to maintain the brush seal 10 in the static structure 12. Col. 2, lines 57-65. However, the top, e.g., circumferential, surface of the brush seal 10 is completely smooth and, thus, the brush seal 10 of Hanrahan does not include a positioning arrangement provided on a circumferential surface, as recited in amended claim 1. Thus, since the brush seal of Hanrahan does not include a positioning arrangement on at least one side surface nor on a circumferential surface, then Hanrahan fails to disclose, or even suggest, a positioning arrangement provided on at least one of the circumferential surface and at least one side surface, as recited in amended claim 1. Therefore, Applicants respectfully request that the rejection of this claim be withdrawn.

As for claims 2 to 5, 7, 8 and 14, which depend from claim 1, it is respectfully submitted that Hanrahan does not anticipate these dependent claims for at least the same reasons given above in support of the patentability of claim 1, and Applicants respectfully request that the rejection of these claims be withdrawn also.

### III. Rejection of Claims 1 to 5, 7, 8, 10 and 11 Under 35 U.S.C. § 102(e)

Claims 1 to 5, 7, 8, 10 and 11 stand rejected under 35 U.S.C. 102(e) as anticipated by U.S. Patent No. 6,302,400 ("Werner et al."). Applicants respectfully submit that Werner et al. do not anticipate the present claims for the following reasons.

Werner et al. purport to relate to a brush seal for sealing a rotor against a housing, the brush seal including a front panel and a supporting plate attached to the housing wherein a number of bristles are disposed between the front panel and supporting plate. Abstract. Werner et al purport to describe a seal housing that defines a fit surface formed by cold joining the front panel and supporting plate. Abstract. Werner et al further purports to describe that the front panel or the supporting plate includes a beaded lip for firmly joining the front panel to the supporting plate. Abstract.

Applicants respectfully submit that Werner et al. do not anticipate the present claims because Werner et al. fail to disclose, or even suggest, each and every element recited in amended claim 1. For instance, it is respectfully submitted that Werner et al. fail to disclose, or even suggest, a bristle housing that includes a circumferential surface and two side surfaces, wherein the brush seal includes a first positioning arrangement provided on at least one of the circumferential surface and at least one side surface, as recited in amended claim 1. In contrast, Werner et al. describe a front panel 3 and a supporting plate 4, each having a side surface 10. Col. 2, lines 50-52. The front panel 3 and the supporting plate 4 are maintained in position relative to each other by a beaded lip 7 of the front panel 3 which embraces a curved outer edge 8 of the supporting plate 4. Col. 3, lines 9-27. The side surfaces 10 of the front panel 3 and the supporting plate 4 are smooth in the region of the housing 2, and, thus, the brush seal 10 of Werner et al. does not include a positioning arrangement provided on at least one side surface, as recited in amended claim 1. Furthermore, Werner et al. state that the outer circumferential surface 9 of the front panel 3 "must generally proceed perpendicular to the two outer lateral surfaces 10" (col. 3, lines 31-33) with the advantage that "additional processing of the outer circumferential or fitting surface that is always required given welding is thus eliminated" (col. 1, lines 64-66). Since the circumferential surface 9 is smooth, the brush seal 1 of Werner et al. does not include a positioning arrangement provided on a circumferential surface, as recited in amended claim 1. Thus, since the brush seal of Werner et al. does not include a positioning arrangement on at least one side surface nor on a circumferential surface, then Werner et al. fail to disclose, or even suggest, a positioning arrangement provided on at least one of the circumferential surface and at least one side surface, as recited in amended claim 1. Therefore, Applicants respectfully request that the rejection of this claim be withdrawn.

As for claims 2 to 5, 7, 8, 10 and 11, which depend from claim 1, it is respectfully submitted that Werner et al. do not anticipate these dependent claims for at least the same reasons given above in support of the patentability of claim 1, and Applicants respectfully request that the rejection of these claims be withdrawn also.

**IV. Rejection of Claims 1, 3 to 5 and 10 to 13 Under 35 U.S.C. § 102(b)**

Claims 1, 3 to 5 and 10 to 13 stand rejected under 35 U.S.C. 102(b) as anticipated by U.S. Patent No. 5,066,024 ("Reisinger et al."). Applicants respectfully submit that Reisinger et al. do not anticipate the present claims for the following reasons.

Reisinger et al. purport to relate to a brush-type seal that has a wire bundle which is bent in a U-shape, the wire bundle surrounded by a radially inward slotted ring shaped tube and by a housing consisting of two connected support rings. Abstract. Reisinger et al purport that the application and maintenance of clamping forces is possible and is provided for to the ring shaped tube through the support rings. Abstract. Reisinger et al. further purport that attachments are provided on one supporting for fastening at a housing. Abstract. In addition, Reisinger et al. purport that the support rings are connected by welding at a welding joint which is spaced from the slotted tube which directly contacts the wire bundle. Abstract.

Applicants respectfully submit that Reisinger et al. do not anticipate the present claims because Reisinger et al. fail to disclose, or even suggest, each and every element recited in amended claim 1. For instance, it is respectfully submitted that Reisinger et al. fail to disclose, or even suggest, a first positioning arrangement provided on at least one of the circumferential section and at least one side surface and a second positioning arrangement provided on one of a rotor, a stator and a fastening element, wherein the first positioning arrangement and the second positioning arrangement are configured to interact in a positive-locking manner and to provide definite positioning of the bristle housing, as recited in amended claim 1. In contrast, in connection with Figure 1, Reisinger et al. describe supporting rings 4 and 5 that have recesses forming an annulus 10 in which a wire bundle 2 is maintained. Col. 2, lines 24-29. One supporting ring 4 has a ring flange 12 that includes bores 7 for fastening to a housing. Col. 2, lines 50-52. Reisinger et al. further state that, as an alternative, the brush-type seal may also be fastened in any other known manner, for example, by means of clamping, soldering, welding or gluing. Col. 2, lines 52-55. Thus, in connection with Figure 1, Reisinger et al. do not describe a second positioning arrangement provided on one of the rotor, the stator and a fastening element. Furthermore, Figure 1 of Reisinger et al. do not describe a

first positioning arrangement provided on at least one of the circumferential section and at least one side surface, but merely discloses and suggests fastening means on the supporting ring 4.

In connection with Figure 3, on the other hand, Reisinger et al. describe a notch (not labeled) in a casing 16. The casing 16 interacts with a securing ring 17 that is separate from either of the two supporting rings 4' and 5', and thus does not interact with a first positioning arrangement provided on at least one of the circumferential section and at least one side surface, as recited in amended claim 1. Thus, since neither brush seal of Reisinger et al. includes a first positioning arrangement provided on at least one of the circumferential section and at least one side surface and a second positioning arrangement provided on one of a rotor, a stator and a fastening element, wherein the first positioning arrangement and the second positioning arrangement are configured to interact in a positive-locking manner and to provide definite positioning of the bristle housing, then Reisinger et al. fail to disclose, or even suggest, all of the limitations of amended claim 1. Therefore, Applicants respectfully request that the rejection of this claim be withdrawn.

As for claims 3 to 5 and 10 to 13, which depend from claim 1, it is respectfully submitted that Reisinger et al. do not anticipate these dependent claims for at least the same reasons given above in support of the patentability of claim 1, and Applicants respectfully request that the rejection of these claims be withdrawn also.

#### **V. Allowable Subject Matter**

Applicants note with appreciation the indication of allowable subject matter contained in claims 6 and 9. In this regard, the Examiner will note that each of claims 6 and 9 has been amended herein to include all of the limitations of its respective base claim. It is therefore respectfully submitted that claims 6 and 9 as amended herein are in condition for immediate allowance.

**VI. Conclusion**

Attached hereto is a marked-up version of the changes made to the claims by the current Amendment. The attached page is captioned "Version with Markings to Show Changes Made."

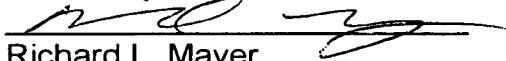
It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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**Version with Markings to Show Changes Made**

**IN THE CLAIMS:**

Claims 1, 6 and 9 have been amended without prejudice as follows:

1. (Amended) A brush seal for sealing a rotor with respect to a stator, comprising:

    a bristle housing configured to be arranged on a first one of the rotor and the stator, the bristle housing including a cover plate, a supporting plate, a circumferential surface and two side surfaces;

    bristles fastened in the bristle housing, the bristles including free ends oriented toward a second one of the rotor and the stator;

    a first positioning arrangement provided on at least one of the circumferential [section] surface and at least one side surface; and

    a second positioning arrangement provided on one of the rotor, the stator and a fastening element;

    wherein the first positioning arrangement and the second positioning arrangement are configured to interact in a positive-locking manner and to provide definite positioning of the bristle housing.

6. (Amended) [The brush seal according to claim 1,] A brush seal for sealing a rotor with respect to a stator, comprising:

a bristle housing configured to be arranged on a first one of the rotor and the stator, the bristle housing including a cover plate, a supporting plate, a circumferential surface and two side surfaces;

bristles fastened in the bristle housing, the bristles including free ends oriented toward a second one of the rotor and the stator;

a first positioning arrangement provided on at least one of the circumferential surface and at least one side surface; and

a second positioning arrangement provided on one of the rotor, the stator and a fastening element;

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**Version with Markings to Show Changes Made**

wherein the first positioning arrangement and the second positioning arrangement are configured to interact in a positive-locking manner and to provide definite positioning of the bristle housing, and wherein the first positioning arrangement includes at least one spot weld that projects beyond the circumferential surface, the second positioning arrangement including a recess formed in one of the stator and the rotor, the at least one spot weld being engageable in the recess.

9. [The brush seal according to claim 7,] A brush seal for sealing a rotor with respect to a stator, comprising:

a bristle housing configured to be arranged on a first one of the rotor and the stator, the bristle housing including a cover plate, a supporting plate, a circumferential surface and two side surfaces;

bristles fastened in the bristle housing, the bristles including free ends oriented toward a second one of the rotor and the stator;

a first positioning arrangement provided on at least one of the circumferential surface and at least one side surface; and

a second positioning arrangement provided on one of the rotor, the stator and a fastening element;

wherein the first positioning arrangement and the second positioning arrangement are configured to interact in a positive-locking manner and to provide definite positioning of the bristle housing, and wherein the first positioning arrangement includes at least one integral projection that projects beyond at least one side surface, wherein the projection is one of lenticular and conical, the second positioning arrangement including a recess formed in one of the stator, the rotor and the fastening element, the at least one integral projection being engageable in the recess.